

## CLAIMS

1. A submerged evaporator (14) contained in a casing (6) and including at least one integrated plate heat exchanger (4), where the integrated plate heat exchanger (4) has at least one inlet connection (24.1) and at least one outlet connection (24.2) for a secondary refrigerant (26), where the plate heat exchanger is disposed at the bottom of the casing (12), where a primary refrigerant (10) may flow around the plate heat exchanger (4) and a secondary refrigerant (26) may flow through the plate heat exchanger (4), and where the uppermost part of the casing (6) is used as a liquid separator, **characterised** in that the integrated plate heat exchanger (4) is integrated with the evaporator (14) and made with an outer contour that substantially follows the lower contour of the casing (6) and the liquid level of the primary refrigerant (10).
2. A submerged evaporator according to claim 1, **characterised** in that the longitudinal sides of the plate heat exchanger (8) are closed for inflow or outflow of the primary refrigerant (10) between the plates (34) of the plate heat exchanger (4), and that in the bottom (12) of the plate heat exchanger (4) there is provided at least one opening through which the primary refrigerant (10) flows in between the plates (34) of the plate heat exchanger.
3. A submerged evaporator according to claim 1, **characterised** in that longitudinal guide plates (28) extending from an area in the vicinity of the top side (44) of the plate heat exchanger (4) and downwards against the bottom (12) of the casing (6) are provided in longitudinal gaps (32) appearing between plate heat exchanger (4) and casing (6), where the downwardly extension of the guide plates (28) has a magnitude so that a longitudinal area at the bottom (12) of the plate heat exchanger is held free from guide plates (28), where the primary refrigerant (10) may flow in between the plates of the plate heat exchanger (34).
4. A submerged evaporator according to any of claims 1-3, **characterised** in that the plates (34) of the plate heat exchanger are embossed with a pattern of guide grooves (36) pointing towards the inner periphery of the casing (6) at the upper edge (44) of

the plates with an angle between 0° and 90° in relation to level, and preferably with an angle between 20° and 80°.

- 5        5. A submerged evaporator according to any of claims 1-4, **characterised in including** a condenser (38) shaped as a second plate heat exchanger, which is mounted in the "dry" part (20) of the casing (6), and which is separated from the evaporator section by a plate (46).
- 10       6. A submerged evaporator according to any of claims 1 -5, **characterised in including** a demister (40) which is mounted in the casing (6) in immediate vicinity of the outlet connection (42) for evaporated refrigerant (10).
- 15       7. A submerged evaporator according to any of claims 1-6, **characterised in being** adapted in order that secondary refrigerant (26) may flow to and from the plate heat exchanger (4) via one inlet connection (24.1) and one outlet connection (24.3), respectively, at the upper edge (44) of the plates.
- 20       8. A submerged evaporator according to any of claims 1-6, **characterised in being** adapted in order that secondary refrigerant (26) may flow to and from the plate heat exchanger (4) via one connection (24) at the bottom (12) of the plates (34) and one connection (24) at the upper edge (44) of the plates, respectively.
- 25       9. A submerged evaporator according to any of claims 1-6, **characterised in being** adapted in order that secondary refrigerant (26) may flow to and from the plate heat exchanger (4) via one connection (24) at the bottom (12) of the plates (34) and two connections (24) at the upper edge (44) of the plates, respectively.
- 30       10. A submerged evaporator according to any of claims 1-9, **characterised in that the** casing (6) contains a suction manifold (18) disposed in the "dry" part (20) of the casing (6) and extending in longitudinal direction of the evaporator (14) with a length substantially corresponding to the length of the plate heat exchanger (4).